EVOLUTION OF POPLAR BASED AGROFORESTRY (PBAF) IN INDIA

R C DHIMAN
WIMCO SEEDLINGS
KASHIPUR ROAD, RUDRAPUR
UDHAM SINGH NAGAR, UK, INDIA
PBAF IN INDIA

• 20 MILLION SAPLINGS PLANTED
• PRACTISED BY 0.25 MILLION FARMERS
• PRACTISED ON 0.25 MILLION HA FARM AREA
• BASED ON TWO DOZENS CLONES INDIGENOUSLY DEVELOPED AND INTRODUCED
EVOLUTION OF PBAF

• TRADITIONAL PBAF PRACTISED IN HILLS FOR CENTURIES
• COMMERCIAL PBAF PRACTISED FOR THREE DECADES NOW
• COMMERCIAL PBAF BEING PRACTISED IN PLAINS NEAR FOOT HILLS AND BASED ON POPULUS DELTOIDES
EVOLUTION OF PBAF

• 1977: WIMCO PLANTED 350 SAPLINGS FIRST TIME ON 3 FARMER’S FIELDS
• CREATED AF DIVISION WITH 350 STAFF
• STARTED CHARGING Rs. 0.01/SAPLING IN 1981 AND Rs. 0.20/SAPLING IN 1983
• WIMCO SEEDLINGS LTD. WAS ESTABLISHED FOR FOCUSED POPLAR RESEARCH AND DEV. IN 1984
• REFINANCE SCHEME WITH NATIONALISED BANKS IN 1984 AND CONTINUED TILL 1995
• 3 CLONES IN 1995 AND 6 NEW CLONES IN 2000 WERE RELEASED FOR PLANTING BY FARMERS
• 5 NEW CLONES SENT FOR REGISTRATION TO IPC IN 2007 AND BEING PROMOTED NOW.
## EVOLUTION OF PBAF OVER TIME

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>STATES COVERED</th>
<th>PLANTINGS</th>
<th>CLONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970-80</td>
<td>UP, PB, HR</td>
<td>BLOCK</td>
<td>G48, G3, IC, ST121</td>
</tr>
<tr>
<td>1980-90</td>
<td>UP, PB, HR</td>
<td>BLOCK</td>
<td>G3, G48, ST121</td>
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<tr>
<td>1990-00</td>
<td>UP, PB, HR, RAJ.</td>
<td>MAINLY BLOCK</td>
<td>G48, UDAI, S7C15, S7C8, L-34, ST121</td>
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<tr>
<td>2000….</td>
<td>UP, UK, PB, HR, RAJ., BIHAR</td>
<td>BLOCK, BOARDARY</td>
<td>G48, UDAI, W22, W32, W39, S7C15, S7C8, ST121</td>
</tr>
</tbody>
</table>
PBAF: LINE/ROW PLANTATION
POPLAR MIXED WITH OTHER TREES ON BOUNDARY
PBAF: ISOLA -TED TREES RETAINED GROWN ON FARMS
PBAF: HOME STEAD
MULTITIER: POPLAR + WHEAT + MEDICINAL VINE
MULTITIER: POPLAR + WHEAT + SAPOTA
MULTITIER: POPLAR ON BOUNDARY + GUAVA
MULTITIER: POPLAR + JATROPA + LEMON GRASS
POPLAR WITH FISH CULTURE
POPLAR WITH ANIMAL HUSBANDARY
POPLAR NURSERY AS UNDER CROP IN CORN FIELDS
WHEAT - A PREFERRED CROP WITH POPLAR
SUGARCANE GOOD IN INITIAL YEARS
BANANA GOOD FOR ONLY FIRST YEAR
MOST CROPS GOOD WITH BOUNDARY POPLAR
MOST WINTER CROPS GOOD WITH POPLAR
MOST CROPS GOOD WHEN POPULAR IS YOUNG
SUNFLOWER-GOOD TILL SECOND YEAR
MENTHA GOOD TILL 3rd YEAR
ARTEMESIA FOR ONLY INITIAL YEARS
CORNS GOOD TILL SECOND YEAR
CHILLIES GOOD TILL SECOND YEAR
TURMERIC IDEAL CROP FOR OLD AGE
GINGER COULD BE GROWN THROUGHOUT
FODDER CROPS LIKE OATS CAN BE GROWN THROUGHOUT
NEW CROPS LIKE PINE APPLE COULD BE GROWN
STRAWBERRY A GOOD CROP, MARKETING AFFECTS
PADDY NOT PREFERRED INTERCROP
## Status of Crops Grown

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<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Sample Size</td>
<td>220</td>
<td>100</td>
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<tr>
<td>Crops Not Grown</td>
<td>5</td>
<td>2.27</td>
</tr>
<tr>
<td>Crops Grown</td>
<td>215</td>
<td>97.73</td>
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<tr>
<td>Summer Crops Not Grown</td>
<td>17</td>
<td>7.73</td>
</tr>
<tr>
<td>Crops Grown Both Seasons</td>
<td>198</td>
<td>90.00</td>
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</table>
## INTENSITY OF GROWING CROPS IN PBAF

<table>
<thead>
<tr>
<th>AGE</th>
<th>WINTER (No./%)</th>
<th>SUMMER (No./%)</th>
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<tbody>
<tr>
<td>1</td>
<td>212</td>
<td>177</td>
</tr>
<tr>
<td>2</td>
<td>213</td>
<td>185</td>
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<tr>
<td>3</td>
<td>211</td>
<td>76</td>
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<tr>
<td>4</td>
<td>205</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>183</td>
<td>21</td>
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<tr>
<td>6</td>
<td>114</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>25</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>
MAJOR CROPS INTEGRATED WITH POPLAR

- WHEAT- 51.67%
- SUGARCANE 29.81%
- FODDER 6.75%
- MAIZE 2.69%
- BAJRA/JAWAR 1.97%
- PADDY- 1.49%
- GREEN MANURING 1.14%
- OTHERS 4.68%
SILVICULTURALLY SOUND
7.5 MILLION TONNES FRESH TIMBER
INDUSTRIALLY SUPPORTIVE
POPLAR FROM PBAF SUPPORTS

• 1000 INDUSTRIAL UNITS

• >3 DOZENS PRODUCTS
PBAF GENERATES 1.8 MILLION TONE PUPLWOOD
POPLAR SUPPORTS EXTENSIVE FIREWOOD USE

PBAF GENERATES 3.5 MILLION TONE FIREWOOD
EFFECTIVE USE OF SITE RESOURCES
ENHANCED BIODIVERSITY
DIVERSIFICATION FROM PADDY-WHEAT ROTATION
PBAF: REMUNERATIVE LAND USE
ECONOMICAL EMPOWERMENT THROUGH PBAF
EMPLOYMENT GENERATION THROUGH PBAF: NEARLY 100 MILLION MANDAYS
PBAF:

• PUBLIC-PRIVATE PARTICIPATION (PPP)

• CONTRACT FARMING

• REFINANCE SCHEME

• BUY BACK ARRANGEMENT
THANKS